

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**



**AIR FORCE INSTRUCTION 11-2TG-3/4/9
VOLUME 3**

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Flying Operations

TG-3/4/9 OPERATIONS PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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OPR: 34 OG/OGV (Capt C. Mike Smith)

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(Maj Gen Richard A. Mentemeyer)

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This instruction implements AFD 11-2, *Aircraft Rules and Procedures*, and references AFI 11-202, Volume 3, *General Flight Rules*. Along with its complementary **Chapter 5** (Local Operating Procedures), this instruction prescribes standard operational procedures to be used by all pilots operating Air Force TG-3/4/9 sailplane aircraft. This instruction is not applicable to the Air National Guard or Air Force Reserve Command. File a copy of all approved waivers with this instruction. **Attachment 1** contains a glossary of references, abbreviations and acronyms.

See **paragraph 1.8** of this volume for guidance on submitting comments and suggesting improvements to this publication.

The Paperwork Reduction Act of 1974 as amended in 1996 and AFI 33-360, Volume 2, *Forms Management Program*, affect this publication. Maintain and dispose of records created as a result of processes prescribed in this instruction in accordance with AFMAN 37-139, *Records Disposition Schedule* (will convert to AFMAN 33-322, V4).

SUMMARY OF REVISIONS

Changes reference of TG-3, TG-4, and TG-9 to sailplane aircraft. Approval authority change for flight into areas where there is a forecast of severe turbulence, **3.7.4**. Updated requirements for Functional Check Flights (FCF), **3.11.1**. A “[” indicates revised material since the last edition.

Chapter 1

GENERAL INFORMATION AND REQUIREMENTS

1.1. Scope. This instruction outlines the procedures applicable to the safe operation of the sailplane aircraft. With the complementary references cited, this instruction prescribes standard operational procedures to be used by all pilots operating sailplane aircraft. Aircraft commanders will ensure all occupants of the aircraft comply with this directive.

1.2. Pilot's Responsibility. This instruction, in conjunction with other governing directives, prescribes sailplane procedures under most circumstances, but is not to be used as a substitute for sound judgment or common sense. The pilot in command (PIC) is ultimately responsible for the safe and effective operation of the aircraft.

1.3. Crew Requirements. In two-place sailplanes, the normal crew for the aircraft is an Instructor Pilot (IP) in the rear seat and a student pilot (SP) in the front seat. Continuation Training (CT) and Functional Check Flights (FCF) are normally flown solo. Solo pilots will always fly from the front seat. When two pilots of equal qualification fly together, the front seat pilot is usually designated PIC.

1.4. Flight Time and Flight Duty Period Restrictions:

1.4.1. Sailplane pilots are considered “trainer aircrews” for the purposes of meeting the crew rest and flight duty period limitations of AFI 11-202V3, *General Flight Rules*. Flight duty period will not exceed 12 hours regardless of aircrew composition.

1.4.2. Aircrew members will not be scheduled to fly or perform aircrew duties when taking oral or injected medication, unless an individual medical waiver has been granted by the Command Surgeon. Aircrew members may not self-medicate except according to AFI 48-123, *Medical Examinations and Standards*. The following is a partial list of medications permitted without medical consultation:

1.4.2.1. Skin antiseptics, topical antifungals, 1 percent hydrocortisone cream, or benzoyl peroxide for minor wounds and skin diseases that do not interfere with the performance of flying duties or wear of personal equipment.

1.4.2.2. Single doses of over-the-counter aspirin, acetaminophen or ibuprofen to provide pain relief for minor self-limiting conditions.

1.4.2.3. Antacids for mild, isolated episodes of indigestion.

1.4.2.4. Hemorrhoidal suppositories.

1.4.2.5. Bismuth subsalicylate for mild cases of diarrhea.

1.4.2.6. Oxymetazoline or phenylephrine nasal sprays when used by aircrew members as “get me downs” in the event of unexpected ear or sinus block during flight. They shall not be used to treat symptoms of head congestion existing prior to flight. (Use renders aircrew members DNIF until cleared for further flight by a flight surgeon.)

1.5. Clothing Requirements. All aircrew members will wear flight suits and boots or locally approved flight uniforms. Aircrew members will remove rings and scarves before performing aircrew duties.

1.6. Deviations. Do not deviate from the procedures and guidance in this publication except when necessary to preserve safety or protect lives.

1.6.1. The PIC has ultimate authority and responsibility for the course of action to be taken.

1.6.2. Report all deviations or exceptions without waiver through channels to the major command (MAJCOM) office of primary responsibility (OPR).

1.7. References. The primary references for sailplane operations are the *TG-3/4/9A Flight Manuals*, Technical Order (T.O.) 1G-3(T)A-1, T.O. 1G-4(T)A-1, and T.O. 1G-9(T)A-1) and this instruction.

1.7.1. Training units may develop maneuvers manuals and instructional techniques guides from the procedures contained in these documents. Maneuvers manuals and instructional techniques guides may be used to augment initial qualification training and may expand these basic procedures, but in no case will they be less restrictive.

1.7.2. The only flight maneuvers authorized are those addressed in this regulation and the individual course syllabi. All other maneuvers are prohibited unless approved by the Squadron Commander prior to flight.

1.8. Recommended Changes and Waivers.

1.8.1. Submit suggested improvements to this instruction on AF Form 847, **Recommendation for Change of Publication**, through standardization/evaluation (Stan/Eval) channels. Squadron Stan/Eval will forward approved recommendations to 34 OG/OGV in accordance with AFD 11-2, *Aircraft Rules and Procedures*, paragraph 2.4.1. AF/XO is approval authority for changes/revisions to this instruction.

1.8.2. Unless otherwise directed, MAJCOM/DRU DOs have waiver authority for this publication according to AFD 11-2. Submit waiver requests in message or memorandum format through Stan/Eval channels. Waiver authority for flights with inoperative equipment is delegated to unit DOs.

Chapter 2

MISSION PLANNING

2.1. Maps and Charts. Maps and Charts. Aircrews must be aware and discuss during pre-flight briefings all civilian traffic operations within 5 nm of planned flight operations (i.e., victor routes, airfields, etc.). When flying outside the local area, all charts covering the route of flight must be on board the aircraft, to include Local Sectional and Terminal Area (Class B Airspace) charts. When possible, annotate on specific charts civilian traffic operations that will be a consideration for flight.

2.2. Required Documents:

2.2.1. The following aircraft documents must be on board the aircraft for flight:

2.2.1.1. Aircraft registration.

2.2.1.2. Airworthiness certificate.

2.2.2. The following documents must be available to the aircrew and will be maintained by the Supervisor of Flying (SOF):

2.2.2.1. Aircraft weight and balance.

2.2.2.2. AFTO Form 781, **ARMS Aircrew/Mission Flight Data Document**.

2.2.3. As a minimum, pilots will be responsible for the information in this instruction, the local procedures chapter, and the flight manuals. Pilots will maintain in-flight guides and checklists for each TG-series glider in which they are qualified. In flight, the PIC must carry the aircraft checklist and in-flight guide.

2.3. Briefing and Debriefing. The PIC is responsible for presenting a logical briefing that will promote safe, effective mission accomplishment. In addition, the following guidance applies:

2.3.1. Pilots should attend a mass briefing for scheduled sorties. Pilots who do not attend the formal briefing must obtain a briefing from the SOF or his representative before signing out to fly.

2.3.2. MAJCOMS will provide briefing guides for use by the PIC. Guides will contain a reference list of items that may apply to particular missions. Items listed may be briefed in any sequence. Specific items not pertinent to the mission need not be covered.

2.3.3. All missions will be debriefed.

2.3.4. On subsequent flights, the PIC may brief only those items that have changed from the previous flights.

2.3.5. Required topics for flight briefings are contained in local [Chapter 5](#).

2.4. Flight Crew Information File (FCIF). The FCIF is used to ensure that aircrews receive time-critical information prior to signing out aircraft. Aircrews will ensure they have read the latest FCIF and signed it off prior to signing out aircraft.

Chapter 3

NORMAL OPERATING PROCEDURES

3.1. Preflight. The status of all sailplane and ground equipment inspections will be recorded in their respective AFTO Forms 781. Aircrews will ensure that the pitot tube extension is in place for all TG-9 flights.

3.1.1. Pilots or maintenance personnel discovering an unairworthy condition will immediately install a red tag and ensure the aircraft AFTO Form 781 is updated to reflect a red X status. The tag will only be removed when repairs are complete and the aircraft is released for flight by maintenance.

3.1.2. After a sailplane is reassembled, a person not involved in the reassembly must perform a positive control check. The officer involved in the aircraft assembly will sign off the "Corrected by" block in the AFTO Form 781. The aircraft must then be inspected by maintenance prior to flight. (Exception: When maintenance personnel are not available, TDY, etc., a staff IP qualified in the aircraft's assembly/disassembly may inspect the aircraft.) The individual who performed the inspection will sign off the red X and the "Inspected by" block in the AFTO Form 781.

3.1.3. Once a towrope is placed into service, the marshaller and rope runner share the responsibility for its airworthiness. Prior to each tow, the rope should be inspected and taped as required. Ropes that are excessively frayed, unraveled, or otherwise in poor condition will be removed from service immediately. After removing the hardware from the rope, throw the bad rope away. If any question exists as to the airworthiness of a rope, contact the SOF. At the end of daily flying operations, the SOF will ensure all ropes are stored indoors.

3.1.4. Weak batteries should always be removed and placed on the chargers. If discovered during a pre- or post-flight inspection, pilots should replace weak batteries prior to signing off the inspection.

3.2. Ground Operations:

3.2.1. Unless a sailplane is being ground handled or in the takeoff position, airbrakes will be open (except for the TG-9A) and the upwind wing will be manned.

3.2.2. Do not stand in front of any part of a sailplane hooked up for launch.

3.2.3. Do not ground handle or move aircraft so as to overlap wings and/or fuselages unless hanging the aircraft.

3.2.4. Draglines will be at least one half the wingspan of the sailplane.

3.2.5. Sailplane ground handling must be supervised by a pilot qualified in the aircraft or by maintenance personnel. Exception: pilots upgrading in the sailplane may supervise ground handling after they are proficient in ground operations for that aircraft. Use extreme caution when ground handling aircraft. Improper procedures may result in structural damage.

3.2.6. Personnel not actively involved in refueling will remain at least 50 ft away from an aircraft refueling operation. In addition, do not radiate electromagnetic energy (radio or transponder operation) within the 50 ft safety zone.

3.2.7. Use a minimum of two people to move a sailplane on the ground. For TG-4 ground handling, normally position one person on a strut and one on the upwind wing tip, or one on each strut when

winds are 10 knots or less. For the TG-3A, normally position one person on the upwind wing tip and one at the opposite wing root, nose or wing tip. Except for the TG-9, open the airbrakes whenever a sailplane is static. Close and secure the canopies when the cockpit is not occupied. Never leave a sailplane unattended unless it is tied down.

3.2.8. High Wind Procedures. The SOF will ensure there are adequate personnel on the flightline to safely ground handle all sailplanes when winds exceed 25 knots. Increase nose to tail separation (minimum $\frac{1}{2}$ wingspan) of aircraft on the flightline during strong wind conditions.

3.2.8.1. With winds greater than 25 knots, A minimum of three people are required to move each sailplane. A minimum of two people are required while the aircraft is static.

3.2.8.2. If winds exceed 30 knots - Sailplanes shall remain tied down. The SOF will use good judgment and place as many people as possible (a minimum of four) to move sailplanes caught in the landing area. After landing, aircrews should remain in the cockpits with the radio on, the airbrakes out, and the stick forward until assistance arrives. If available, 50 lb shot bags will be placed the front cockpit, holding the stick forward, and the sailplane will be dragged behind a vehicle.

3.3. Operating Hours. Sailplanes will not fly prior to official sunrise and must be in the traffic pattern no later than five minutes prior to official sunset. Sailplanes must land no later than official sunset.

3.4. Maneuver Altitude Restrictions:

3.4.1. Intentional slack line and Box-the-wash will be practiced no lower than 1000 ft Above Ground Level (AGL).

3.4.2. Spiral Dive Recoveries, Nose High, Turning, and Landing Attitude Stalls will be recovered no lower than 1500 feet AGL.

3.4.3. Spin prevents will be recovered no lower than 2000 ft AGL.

3.4.4. Slow flight may be flown no lower than 1000 ft AGL provided the stall indication airspeed was determined above 1500 ft AGL.

3.4.5. Spins will be initiated no lower than 3500 ft AGL and recovery will be initiated no lower than 3000 ft AGL.

3.4.6. Slips are not authorized below 100 ft AGL.

3.4.7. Sailplanes will not fly closer than 500 ft to the terrain during ridge soaring or flight over mountain ranges.

3.4.8. Thermalling is not authorized below 1000 ft AGL.

3.5. Tie Down Procedures. Sailplanes should be tied down facing into the wind.

3.5.1. Tie down sailplanes in accordance with aircraft flight manual procedures.

3.6. Hangaring. Use a minimum of two people whenever hangaring sailplanes. Only trained personnel may operate hangar doors.

3.6.1. TG-3A/TG-4A Dolly. Use the metal lift to raise the sailplane and place the dolly under the main wheel. With the wing tip and tailwheel off the ground, the sailplane can be moved in any direction while on a dolly.

3.6.2. TG-9A Dolly. Remove the pitot tube extension and place in rear cockpit pouch. Push the sailplane *backward* onto the dolly with the wings level, and insert the stop bar. Never lock the spoilers closed after hanging. Close and lock the canopies and install the canopy cover.

3.7. Weather Minimums:

3.7.1. The minimum ceiling is 1500 ft AGL.

3.7.2. The minimum visibility is three miles.

3.7.3. The maximum density altitude for takeoffs in the TG-9 is 10,000 ft. The SOF will use the High Density Altitude Operations Limits Charts in [Attachment 2](#) to determine the maximum density altitude for takeoffs in the TG-3 and TG-4. The SOF will use discretion in determining whether to continue TG-3/4 operations when density altitude exceeds 10,000 ft.

3.7.4. Flight in forecast severe turbulence requires the 34 OG/CC approval. If severe turbulence is reported, cease operations in the affected area.

3.7.5. The minimum temperature (with wind chill) is 0°F. The SOF may grant exceptions on occasions when the wind chill is below 0°F provided all participants are appropriately dressed, personnel are cycled frequently through a heated shelter, and each aircrew member is carefully monitored for signs of hypothermia.

3.7.6. The minimum Runway Condition Reading (RCR) is 12 (wet).

3.7.7. Operations may continue in areas of light precipitation provided there is no threat of icing. The SOF's decision will be based upon intensity, frequency, temperature, etc. Pilots should be particularly aware of the possibility of erroneous airspeed/altimeter indications, increased sink, and decreased lift.

3.8. Clearing. Pilots must understand that many Visual Flight Rules (VFR) pilots use uncontrolled training areas and surrounding airspace. Therefore, the concept of *see and avoid* is critical and cannot be over-emphasized.

3.9. Transfer of Aircraft Control. Both pilots must know at all times who has control of the aircraft. In all cases, the pilot assuming control of the aircraft will state "I have the aircraft" and will shake the stick. The pilot relinquishing control will state: "You have the aircraft." Once assuming control of the aircraft, maintain control until relinquishing it as stated above.

3.10. Landing Restrictions:

3.10.1. Maintain at least one full wingspan of lateral separation from sailplanes or obstacles during landing and rollout.

3.10.2. Stop no closer than 200 ft behind other aircraft, equipment or personnel.

3.10.3. If the crosswind component (including gusts) exceeds 15 knots, change the landing direction and land into the wind, if possible.

3.11. Functional Check Flights (FCF). FCFs are performed after accomplishing inspections or maintenance to assure the aircraft is airworthy and capable of mission accomplishment.

3.11.1. FCFs are required on government owned aircraft following certain maintenance actions. The FCF is a check for airworthiness, which must be performed while airborne; to verify the effects of aerodynamic forces, etc., on the repair action and to verify that the aircraft is capable of flying its normal assigned profile. *When an FCF is required on any aircraft system, the PWS contractor shall immediately notify the affected squadron that the FCF is due.*

3.11.1.1. FCF's as a minimum, shall be flown for all aircraft for the following items:

3.11.1.1.1. When required by AD's, Service Bulletins/Letters.

3.11.1.1.2. Replacement or rigging of Primary Flight Controls.

3.11.1.1.3. When directed by the QAE for unusual occurrences.

3.11.1.1.4. All Gliders after accomplishment of Annual Inspection.

3.11.1.1.5. Any additional items dictated/required by the FAA or Aircraft Manufacturer.

3.11.2. The unit commander is responsible for the FCF program; he or she may waive a complete FCF and authorize partial checks of systems disturbed by maintenance, inspection, or modification.

3.11.3. The best-qualified instructors or Stan/Eval pilots will accomplish FCFs. The unit commander will designate FCF-qualified pilots by memorandum.

3.12. Post Flight:

3.12.1. Never leave an aircraft unattended unless it is tied down or hangared.

3.12.2. Complete the AFTO Form 781 and notify maintenance of discrepancies.

3.12.3. Inform maintenance, QAE and Squadron Flying Safety of any ground or air aborts.

3.13. Flights With Inoperative Equipment. All installed systems and equipment must be functional unless operations are authorized by [Table 3.1.](#) below or waived by the squadron DO. Cross-country flights are those which occur outside unit-defined local training areas. Even though operations with inoperative systems may be authorized by [Table 3.1.](#), if the PIC considers an item essential for safe flight it must be repaired.

Table 3.1. Equipment Permitted to Be Inoperative.

Item	Equipment	Remarks
Avionics:		
1	GPS-NAV	Required only for Competition Sorties (if installed.)
2	L-NAV	Required only for Cross Country Sorties (if installed.)
3	Push-To-Talk Switch	May be inoperative for unoccupied seats.
4	Microphone	May be inoperative for unoccupied seats.
Instrumentation:		
1	Variometer	L-NAV variometer may be inoperative if a mechanical variometer is available.
Airframe and Cabin:		
1	Canopy Vents	Panel air vents may be inoperative. TG-9 canopy sliding windows must function.
2	Seat Belts/Shoulder Harness/Release Mechanism	May be inoperative for unoccupied seats.

Chapter 4

ABNORMAL OPERATING PROCEDURES

4.1. General. Follow the procedures in this chapter when other than normal circumstances occur. These procedures do not supersede procedures contained in the flight manual. The pilot in command is primarily responsible for handling inflight emergencies. Pilots should take whatever action is necessary to safely terminate the emergency. The additional pilot (if applicable) will confirm all critical action procedures have been accomplished and provide checklist assistance at the request of the pilot in command.

4.1.1. Refer to the checklist and Inflight Guide for additional information. If time and conditions permit, inform the appropriate controlling agency with the following information about your situation:

4.1.1.1. Aircraft call sign and type.

4.1.1.2. Position and altitude.

4.1.1.3. Nature of emergency.

4.1.1.4. Number of people on board.

4.1.1.5. Intentions (desired runway and ETA).

4.1.1.6. Assistance required.

4.1.2. The situation will dictate whether pilots should return to the home airfield or land at another suitable location. Deviate from normal return routes and altitudes if the situation warrants. When deviating, inform the controlling agency, if possible.

4.2. Simulated Emergencies. Brief simulated emergencies prior to any training sortie. Simulated emergencies will not be initiated below 300 ft AGL. Practice rope breaks to downwind landings will be coordinated in advance with the controlling agency.

4.3. Opposite Direction Landings. If a rope break occurs on takeoff leg, do not attempt a 180° turn unless altitude is at least 200 ft AGL. Turns should be made into the wind if possible.

4.4. Radio Failure. For a no radio (NORDO) recovery, the procedures in AFI 11-205, *Aircraft Cockpit and Formation Flight Signals*, and Flight Information Publications (FLIP) apply. Comply with the following general procedures:

4.4.1. At a controlled airfield, attempt to remain outside or above Class D airspace until the direction of landing has been determined. Pilots will rock wings on downwind and acknowledge tower light signals by rocking your wings.

4.4.2. At uncontrolled airfields, attempt to remain 500' above the published pattern altitude while determining the landing direction from traffic flow and wind indicators. Once the landing direction has been determined, join the airfield traffic pattern and land.

Chapter 5

LOCAL OPERATING PROCEDURES

5.1. Use of this Chapter. This chapter is reserved for unit local operating procedures. Units may also publish chapter 5A containing the same information in condensed format to be carried in-flight along with the aircraft checklist. If this chapter is incorporated in another base publication (instruction, supplement, etc.), a single page insert will be used referencing its location or the entire publication will be inserted, as appropriate.

5.2. Guidance. Procedures herein will not be less restrictive than those contained elsewhere in this instruction. Unnecessary repetition of guidance provided in other established directives should be avoided. However, reference to those directives is acceptable when it serves to facilitate location of information necessary for local operating procedures.

5.3. Procedures for Publishing. When publishing chapter 5, units will forward copies to the MAJCOM and appropriate subordinate agencies who will review it and return their comments or required changes back to the units, as appropriate. If a procedure is determined to be applicable to all sailplane units, it will be incorporated into the basic instruction.

5.4. Organization of Chapter 5. The local chapter 5/5A will be organized in the following manner and will include, at a minimum, the following information:

- 5.4.1. Section A. Introduction.
- 5.4.2. Section B. General Policy.
- 5.4.3. Section C. Ground Operations.
- 5.4.4. Section D. Flying Operations.
- 5.4.5. Section E. Abnormal Procedures.
- 5.4.6. Attachments. Illustrations.

5.5. Procedures for Inclusion. This chapter will include procedures for the following, as applicable:

- 5.5.1. Command and control.
- 5.5.2. Aircrew Publication Requirements.
- 5.5.3. Local weather procedures.
- 5.5.4. Advanced program procedures.
- 5.5.5. Unit standards (optional).

5.6. Forms Adopted. AF Form 847, *Recommendation for Change of Publication*; AFTO Form 781, *ARMS Aircrew/Mission Flight Data Document*

CHARLES F. WALD, Lt General, USAF
DCS/Air & Space Operations

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 11-2, *Aircraft Rules and Procedures*

AFI 11-2TG-3/4/9, Volume 1, *TG-3/4/9 Aircrew Training*

AFI 11-202, Volume 3, *General Flight Rules*

AFI 11-205, *Aircraft Cockpit And Formation Flight Signals*

AFI 33-360, Volume 2, *Forms Management Program*

AFMAN 37-139, *Records Disposition Schedule*

AFI 48-123, *Medical Examinations and Standards*

Joint Publication 1-02, *DoD Dictionary of Military and Associated Terms*

T.O. 1G-3(T)A-1, *USAF TG-3A Flight Manual*

T.O. 1G-4(T)A-1, *USAF TG-4A Flight Manual*

T.O. 1G-9(T)A-1, *USAF TG-9A Flight Manual*

Abbreviations and Acronyms

AD—Associated Directive

AFI—Air Force Instruction

AFPD—Air Force Policy Directive

AGL—Above Ground Level

CT —Continuation Training

DNIF —Duty Not Involving Flying

DO—Director of Operations

DRU —Direct Reporting Unit

ETA —Estimated Time of Arrival

FCF —Functional Check Flights

FCIF—Flight Crew Information File

FLIP—Flight Information Publications

GPS-NAV —Ground Positioning System-Navigation

HQ—Headquarters

IP—Instructor Pilot

L-NAV —Navigation System

MAJCOM—Major Command

NORDO—No Radio

OG—Operations Group

OGV—Operations Group Standardization/Evaluation

OPR—Office of Primary Responsibility

PDO—Publishing Distribution Office

QAE —Quality Assurance Evaluator

RCR—Runway Condition Reading

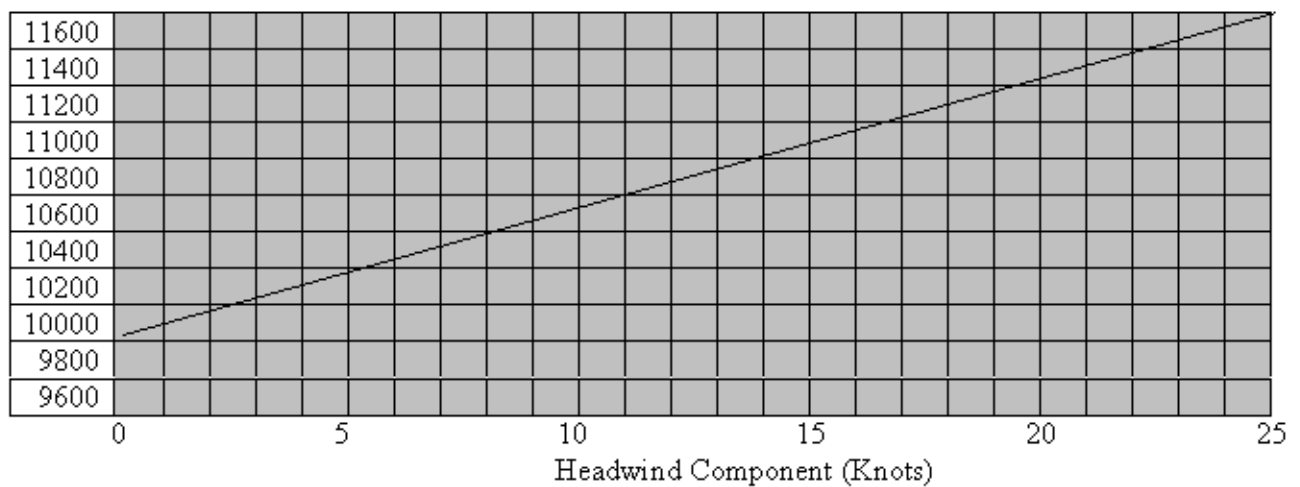
SP—Student Pilot

SOF—Supervisor of Flying

STAN/EVAL—Standardization/Evaluation

T.O.—Technical Order

VFR—Visual Flight Rules

Attachment 2**HIGH DENSITY ALTITUDE OPERATIONS LIMITS****For Various Maximum Recommended Density Altitude Headwind Strengths**

Line coordinates 9708/0 - 11600/25

180 HP Bellanca Scout TG-4**24 June Test Data**